

Zombitse–Vohibasia: a new national park in south-west Madagascar

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Le futur Parc National Zombitse–Vohibasia, à Madagascar, est ‘une zone importante entre les deux grandes régions biogéographiques du pays’⁴. Ce parc sera la seule aire protégée au sud de la fleuve Morondava. Dans la Domaine de l’ouest, il ne reste plus que 18 forêts qui ont une superficie au dessus de 15,000 ha. Le parc est important sur le plan biodiversotique: 71% des oiseaux recensés dans le parc ont une aire de repartition limitée à Madagascar et aux environnantes. La distribution du Bulbul d’Appert *Phyllastrephus apperti*, espèce menacée, est limitée même au parc. Depuis 1994, Zombitse–Vohibasia a été sous l’influence d’un Plan de Conservation et Développement Intégré, dont l’originalité consiste principalement dans son approche communautaire à la gestion des ressources naturelles. Le projet d’écotourisme du parc va cibler des ornithologues qui souhaitent regarder *P. apperti*, qui est facile à trouver près de la Route Nationale 7 à Andranomaitso, 13 km à l’est de Sakaraha.

Introduction

The forests of Zombitse (Zombitsy) and Vohibasia, soon to be afforded national park status, are a crucial life-support system for unique biodiversity and the local human population in semi-arid south-west Madagascar. The new national park will comprise dry deciduous forest, characterised by baobabs and vivid green trees of the family Euphorbiaceae protruding through the low canopy. These forests are the sole refuge for the poorly known and globally threatened Appert’s Greenbul *Phyllastrephus apperti* and support several other birds of conservation concern. Visibility, although impaired by a high density of vines, is better than in the eastern rainforests and most speciality birds can be seen during a short visit. The park lies in one of the most culturally sensitive regions of Madagascar. The complexities of human development and conservation of the region’s endemic birds, plants and lemurs are heavily inter-dependent.

Conservation Importance

Zombitse–Vohibasia is of prime significance for the conservation of the remaining 3% of the forests of the western floral domain²². The future national park is the only protected area south of the Morondava river^{11,17}. The adjacent forests of Zombitse and Vohibasia are two of just 18 forests in Endemic Bird Area C34 (West Malagasy Dry Forest)¹² with an area greater than 15,000 ha. The forest watershed helps maintain two major rivers, the Fiheranana and Taheza, and thousands of hectares of paddy fields that provide much of the region’s staple food requirements²³. Increasing forest destruction is putting Zombitse–Vohibasia’s unique biodiversity at risk.

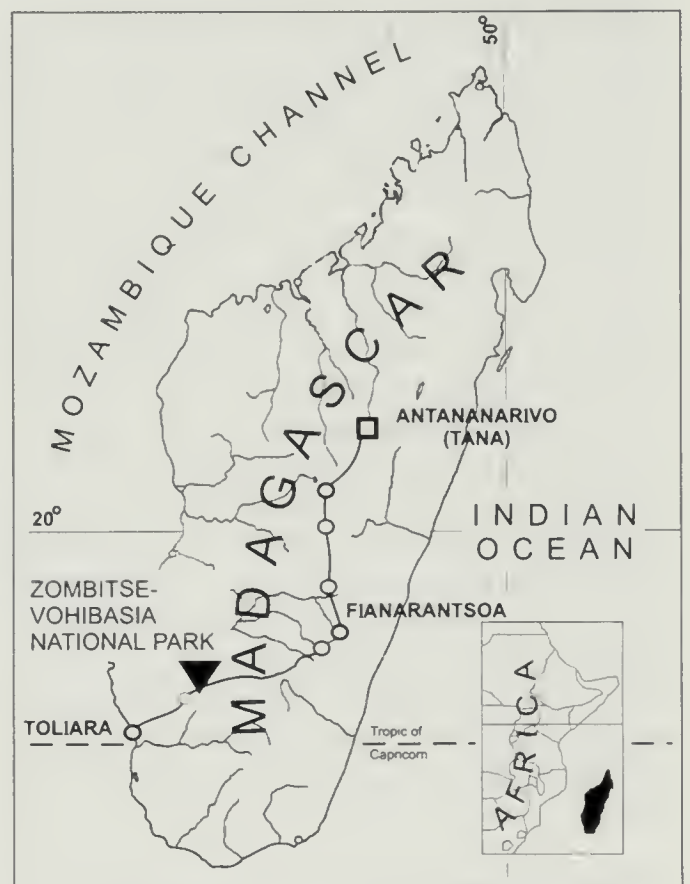


Figure 1. Map showing the location of the new Zombitse-Vohibasia National Park in Madagascar

Biological Diversity

The park’s full significance has probably not yet been realized. Recent brief ecological surveys have already produced a new genus of insectivorous mammal from the family Tenrecidae (S M Goodman pers. comm.); a new species of blind burrowing snake (*Typhlops* sp.) and several new plant species in the Euphorbiaceae, Cucurbitaceae and Sarcolaenaceae families^{4,10,23}.

Of the 86 bird species currently known from the park^{10,16} (see Appendix 1), 61 (71%) are endemic to Madagascar and related islands¹⁴. Five species have a restricted-range of 50,000 km² or less^{12,21} and a further four are limited to the western biome¹¹. Three species are considered globally threatened (Madagascar Little Grebe *Tachybaptus pelzelinii*, Appert's Greenbul *Phyllastrephus apperti* and Benson's Rock-thrush *Pseudocossyphus bensoni*) and five are near-threatened³.

Phyllastrephus apperti is only known with certainty from the park^{3,10,16}. This predominantly terrestrial bird appears to be rare in Vohibasia (type-specimen and three recent records) and locally common in Zombitse¹⁶. Reports from other localities are inconclusive¹⁶. In 1974, a subspecies of Madagascar Pygmy Kingfisher *Ispidina madagascariensis diluta* was described from "forests east of Sakaraha" (thus within or adjacent to the park)¹, but has not been recorded subsequently^{10,16}. The three near-threatened forest species known from Zombitse–Vohibasia (Madagascar Crested Ibis *Lophotibis cristata*, Henst's Goshawk *Accipiter henstii* and Madagascar Sparrowhawk *Accipiter madagascariensis*) occur rather widely (but at low densities) in Madagascar's remaining dry western and humid eastern forests. In the park's non-forest habitats, the first breeding population of Benson's Rock Thrush *Monticola bensoni* away from Isalo national park was located at Vohimena in 1996⁹.

Endemism and endangerment are also characteristics of other classes represented in Zombitse–Vohibasia. Four of the park's eight lemur species^{6,15,16} are subject to some degree of global threat¹³: Verreaux's Sifaka *Propithecus v. verreauxi*, Coquerel's Dwarf Lemur *Mirza coquereli*, Ring-tailed Lemur *Lemur catta* and Pale Fork-marked Lemur *Pbanerfurfifer pallescens*. In 1995, the second population of Madagascar's largest endemic diurnal gecko (Reptilia), the commercially traded Standing's Day Gecko *Phelsuma standingi* was discovered at Zombitse^{7,19}.

Birding in Zombitse

Dry forest

The relatively degraded forest surrounding Andranomaitso, relatively rich in birdlife, is the proposed entry route for visitors to Zombitse–Vohibasia²² (see Fig. 2; also Box—Finding Appert's Greenbul). Mixed-species flocks include greenbuls (Appert's and Long-billed *P. madagascariensis*) and vangas (Blue *Cyanolanius madagascariensis*, Hook-billed *Vanga curvirostris* and Rufous *Schelba rufa*), both frequently joined by couas (notably Giant *Coua gigas* and Coquerel's *C. coquereli*), which also bask on trails or in glades. The

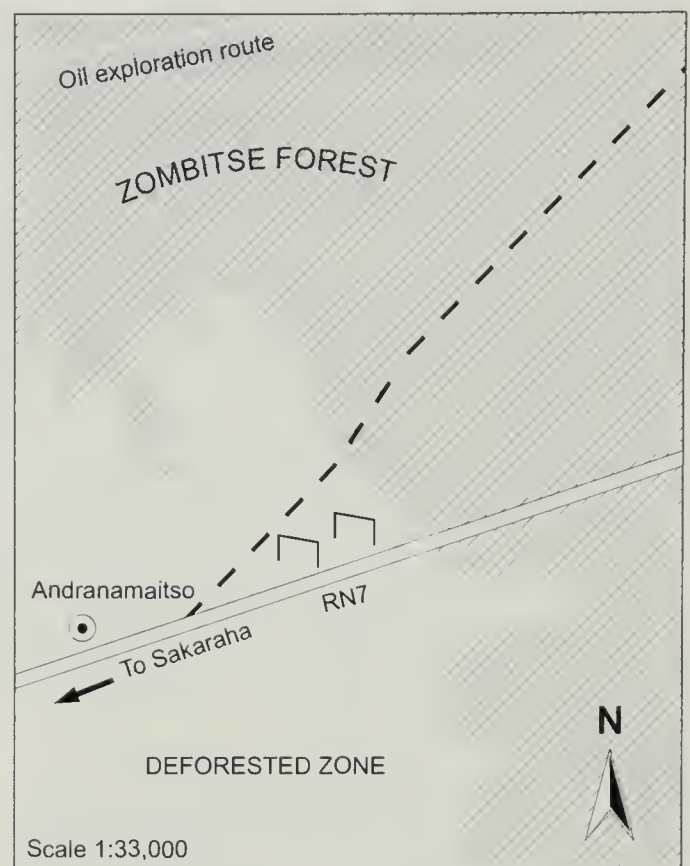


Figure 2. Map showing proposed entry route for visitors to Zombitse–Vohibasia

Madagascar Crested Ibis is elusive but can be seen on trails at dawn and dusk.

Gallery forest

Species diversity is highest in the park's riparian habitats¹⁶. Gallery forest is an irreplaceable and diminishing dry season refuge for the park's wildlife. In deforested terrain, surface water is lost through evaporation or, where the narrow impermeable organic layer is breached by uprooted trees or wells, by irrevocable drainage into the sandstone. A short distance from the village of Beba Manamboay, the source of the Ambiamena river nourishes one of the few pieces of intact gallery forest left in Zombitse–Vohibasia (see Fig. 1). Large flocks of Sickle-billed Vangas *Falco pelliata* regularly occur, Henst's Goshawks perform courtship flights over the valley and Madagascar Cuckoo-falcon *Aviceda madagascariensis* has been seen hunting in the understorey. This is the most likely area to see other specialities such as Fossa *Cryptoprocta ferox*, an arboreal carnivore; the three diurnal lemurs (*Lemur catta*, *Propithecus v. verreauxi* and Brown Lemur *Eulemur fulvus rufus*); and occasional wetland birds such as Madagascar Little Grebe and Madagascar Pond Heron *Ardeola idae*. A nocturnal walk will almost guarantee sightings of Malagasy Scops Owl *Otus rutilus*, the rare Coquerel's Dwarf Lemur and Pale Fork-marked Lemur.

Grassland

This habitat is considered almost wholly anthropogenic^{8,16} but does support a few interesting regional endemics. Réunion Harriers *Circus maillardi* are occasional and Benson's Rock Thrushes have been seen around villages picking scraps from gardens⁹. The Thamnornis Warbler *Thamnornis chloropetoides*, most familiar in the *Didiera* thorn forests to the west, and Lantz's Brush Warbler *Nesillas lantzi* (recently granted specific status from Madagascar Brush Warbler *Nesillas typica*^{8,20}) occur in secondary brush habitat. Outside the park, the village of Sakaraha is worth an evening visit to look for the crepuscular Bat Hawk *Machaeramphus alcinus*. On two occasions in 1995 and 1996 an individual was hunting bats around the radio mast opposite the market.

Recent History

Zombitse was protected from unlicensed exploitation when it was allocated "classified forest" status in 1962. The first permits for limited logging became available in 1974–80 and the immigrant village of Andranomaitso was subsequently formed along Route National 7 (RN7). In 1987, permission was granted to clear-fell the region around the village. This caused the deforestation of 2,400 ha (10%) of Zombitse in just four years, and the region now supports several other such villages around the immigration epicentre of Andranomaitso⁸.

The vast majority of the maize grown on the newly deforested terrain does not reach local markets, but is rather exported to La Réunion, where it is converted into chicken feed for sale in France (A. F. A. Hawkins pers. comm.). Selective exploitation of timber for charcoal and building materials continues to destroy the forest's physical structure and to threaten its biological diversity¹⁸. Around the remaining forest tracts, baobabs *Adansoniata*—the only tree with no timber value—have been left as statuesque reminders of this recent tragedy.

Conservation Strategy

The national park, when formally designated, will comprise three distinct zones: Zombitse forest (13,501 ha), Vohibasia forest (13,570 ha) and Isoko forest/Vohimena (2,689 ha). In total, 27,391 ha (94%) of the park is forest, the remainder consisting of deforested areas, marsh and anthropogenic grassland²³.

Since 1994, Zombitse–Vohibasia has benefited from a low-cost Integrated Conservation Development Plan (ICDP) initiated by Association Nationale pour la Gestion des Aires Protégées (ANGAP), the Direction des Eaux et Forêts (DEF) and WWF-Mada-

gascar²³. The ICDP has aimed to introduce the sustainable management of natural resources and to ensure that local communities become "responsible guardians" of the national park²³.

The Human Factor

Traditionally, the indigenous Bara tribe have sustainably managed the forest edges of both Zombitse and Vohibasia by rotational burning and grazing. In the past 25 years, the western and southern sectors of Zombitse have been deforested by an expanding immigrant population. Deforestation threatens the hydrological, ecological and physical stability of the environment. Beba Manamboay, meaning 'place where crocodiles were', is a village situated on the river Manamboay along the western flank of Zombitse.

Familiar denudation craters or lavakas are joined by a more bizarre effect of deforestation in the southwest, the shakashak. High evaporation rates cause water to permeate up through the coarse sand substrate. The heavy sand then slips downhill, glacier-like, gouging through irrigation canals and rice paddies. Subterranean flows have also been blamed for massive subsidence during the short but severe rainy season (December–January).

Ecotourism

Integral to the designation of national park status for Zombitse–Vohibasia is its perceived potential for ecotourism. Tourism is an increasing source of revenue for Madagascar, and the number of tourists has increased from 11–15,000 p.a. in the early 1980s to 65,100 in 1994 and a predicted 230,000 by the year 2006.

Although the Vohibasia forest is relatively inaccessible, Zombitse is perfectly situated to capitalise on this growth. Straddling the RN7, it is equidistant from Isalo National Park and the coastal resorts (and *Didiera* thorn forests) north of Toliara. It is estimated that Zombitse will attract 25% of the visitors who go to Isalo, which numbered nearly 8,000 in 1995²³.

Future Prospects

Cultural diversification and demographic expansion are hampering attempts to monitor the park's development. Due to a history of selective exploitation, it is difficult to ascertain whether any primary forest remains. If the park's fauna and flora is able to survive in secondary forest then equitable conservation and human development could co-evolve. Given Zombitse–Vohibasia's importance as a floristic 'oasis', conservationists have to reconcile the needs of the burgeoning local population whilst curbing further

forest loss. The recent creation of a dozen 25 m-wide oil exploration tracks across both forests⁸ destroyed habitat and facilitated access for illicit exploitation of forest products. Consolidating existing local opposition to such radical exploitation is one way to ensure that the forest will continue to serve traditional local needs.

Acknowledgements

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Visiting Zombitse and finding Appert's Greenbul

A new national park headquarters, visitors centre and car park are to be constructed at a site east of Zombitse forest. Before entering the park, visitors will have to call here to collect permits and guide. Until the tourist infrastructure is fully operational, permits should be acquired from ANGAP (Association Nationale pour la Gestion des Aires Protégées) in Antananarivo and the Sakaraha office of WWF should be contacted. Andranomaitso, the entry point for Zombitse is accessible by public transport. All taxi bés between Antananarivo and Toliara pass through the village and there are several (but irregular) *taxi-brousses* daily between Sakaraha and Andranomaitso. Inexpensive accommodation and *hotely* facilities are available in Sakaraha.

Appert's Greenbul, the local endemic and main attraction for visiting birders, is common and easy to see at one site accessible from the RN7, but within the park and thus still requiring a permit. Thirteen kilometres east of the town of Sakaraha (or one kilometre north-east of the village of Andranomaitso), a charette track heads north east from the RN7 and crosses a football field before entering the forest (see Figure 2). Sightings are virtually guaranteed: listen for the contact call—a high pitched trill, similar to but much softer than Long-billed Greenbul. Appert's Greenbul is poorly illustrated in Langrand¹⁴, being rather similar to Grey-crowned Greenbul *P. cinereiceps* of the humid eastern forests.

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Appendix: List of species recorded at Zombitse-Vohibasia national park

Key

Sta: Global threat status (following Collar *et al.*³). V = Vulnerable; nt = near-threatened.

RR: Restricted-range species (following Stattersfield *et al.*²¹) indicated by *

Bio: Biome-restricted species (following BirdLife International¹) indicated by *

End: Species endemic or near-endemic to Madagascar. Species indicated by a * have their breeding and wintering range wholly restricted to Madagascar; species indicated by a (*) are restricted to the Madagascar region (defined by Langrand¹⁴ as being Madagascar, Mauritius, Réunion and the Comores).

Ha: Species considered by Hawkins¹¹ to be valuable for comparing the importance of West Madagascar dry forests are indicated with a *.

¹Nomenclature follows Langrand¹⁴ unless otherwise indicated.

²We follow Schulenberg *et al.*²⁰ in treating *Nesillas (typica) lantzii* as a full species and the suggested English name (per A. F. A. Hawkins pers. comm.).

Scientific name ¹	English name	Sta	RR	Bio	En	Ha
<i>Tachybaptus pelzelinii</i>	Madagascar Little Grebe	V				*
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron					
<i>Ardeola ralloides</i>	Squacco Heron					
<i>Ardeola idae</i>	Madagascar Pond-heron		nt			
<i>Bubulcus ibis</i>	Cattle Egret					
<i>Casmerodius albus</i>	Great Egret					
<i>Ardea purpurea</i>	Purple Heron					
<i>Scopus umbretta</i>	Hamerkop					
<i>Lophotibis cristata</i>	Madagascar Crested Ibis		nt			* *
<i>Dendrocygna viduata</i>	White-faced Whistling-duck					
<i>Sarkidiornis melanotos</i>	Knob-billed Duck					
<i>Anas erythrorhyncha</i>	Red-billed Teal					
<i>Aviceda madagascariensis</i>	Madagascar Cuckoo-falcon					*
<i>Milvus migrans</i>	Black Kite					
<i>Polyboroides radiatus</i>	Madagascar Harrier-hawk					*
<i>Circus maillardi</i>	Réunion Harrier		nt	*		(*)
<i>Accipiter henstii</i>	Henst's Goshawk		nt			*
<i>Accipiter madagascariensis</i>	Madagascar Sparrowhawk		nt			*
<i>Accipiter francesii</i>	Frances' Sparrowhawk					(*)
<i>Buteo brachypterus</i>	Madagascar Buzzard					*
<i>Falco newtoni</i>	Madagascar Kestrel					(*)
<i>Falco zoniventris</i>	Banded Kestrel					*
<i>Falco peregrinus</i>	Peregrine					
<i>Margaroperdix madagascariensis</i>	Madagascar Partridge					*
<i>Coturnix</i> sp.	quail sp.					
<i>Numida meleagris</i>	Helmeted Guineafowl					
<i>Turnix nigricollis</i>	Madagascar Buttonquail					*
<i>Dryolimnas cucui</i>	White-throated Rail					(*)
<i>Porphyrio porphyrio</i>	Purple Swamphen					

Scientific name ¹	English name	Sta	RR	Bio	En	Ha	Scientific name ¹	English name	Sta	RR	Bio	En	Ha
<i>Pterocles personatus</i>	Madagascar Sandgrouse			*	*		<i>Phyllastrephus madagascariensis</i>	Long-billed Greenbul					*
<i>Streptopelia picturata</i>	Madagascar Turtle-dove					(*)	<i>Phyllastrephus apperti</i>	Appert's Greenbul	V	*	*	*	*
<i>Oena capensis</i>	Namaqua Dove						<i>Hypsipetes madagascariensis</i>	Madagascar Bulbul					
<i>Treron australis</i>	Madagascar Green-pigeon					(*)	<i>Copsychus albospectularis</i>	Madagascar Magpie-robin					*
<i>Coracopsis vasa</i>	Greater Vasa-parrot					(*)	<i>Saxicola torquata</i>	Stonechat					
<i>Coracopsis nigra</i>	Lesser Vasa-parrot					(*)	<i>Pseudocossyphus bensoni</i>	Benson's Rock-thrush	V	*			*
<i>Agapornis cana</i>	Grey-headed Lovebird					*	<i>Nesillas lantzii</i>	Lantz's Brush-warbler ²				*	*
<i>Coua gigas</i>	Giant Coua			*	*		<i>Thamnornis chloropetoides</i>	Thamnornis Warbler			*	*	*
<i>Coua coquereli</i>	Coquerel's Coua	*	*	*	*		<i>Cisticola cherina</i>	Madagascar Cisticola					(*)
<i>Coua ruficeps</i>	Red-capped Coua			*	*		<i>Newtonia brunneicauda</i>	Common Newtonia					*
<i>Coua cristata</i>	Crested Coua					*	<i>Neomixis tenella</i>	Common Jery					*
<i>Centropus toulou</i>	Madagascar Coucal					*	<i>Neomixis striatigula</i>	Stripe-throated Jery					*
<i>Tyto alba</i>	Barn Owl						<i>Terpsiphone mutata</i>	Madagascar Paradise-flycatcher					(*)
<i>Otus rutilus</i>	Madagascar Scops-owl					(*)	<i>Nectarinia souimanga</i>	Souimanga Sunbird					(*)
<i>Ninox supercilialis</i>	White-browed Owl					*	<i>Nectarinia notata</i>	Long-billed Green-sunbird					(*)
<i>Asio madagascariensis</i>	Madagascar Long-eared Owl					*	<i>Zosterops maderaspatana</i>	Madagascar White-eye					(*)
<i>Caprimulgus madagascariensis</i>	Madagascar Nightjar					(*)	<i>Calicalicus madagascariensis</i>	Red-tailed Vanga					*
<i>Zoonavena grandidieri</i>	Malagasy Spine-tailed Swift					(*)	<i>Schetba rufa</i>	Rufous Vanga					*
<i>Cypsiurus parvus</i>	African Palm-swift						<i>Vanga curvirostris</i>	Hook-billed Vanga					*
<i>Apus melba</i>	Alpine Swift						<i>Falcoea palliata</i>	Sickle-billed Vanga			*	*	
<i>Corythornis vintsioides</i>	Madagascar Malachite-kingfisher					(*)	<i>Leptopterus viridis</i>	White-headed Vanga					*
<i>Ispidina madagascariensis</i>	Madagascar Pygmy-kingfisher			*	*		<i>Leptopterus chabert</i>	Chabert's Vanga					*
<i>Merops superciliosus</i>	Madagascar Bee-eater						<i>Cyanolanius madagascariensis</i>	Blue Vanga					(*)
<i>Eurystomus glaucurus</i>	Broad-billed Roller						<i>Dicrurus forficatus</i>	Crested Drongo					(*)
<i>Leptosomus discolor</i>	Cuckoo-roller					(*)	<i>Corvus albus</i>	Pied Crow					
<i>Upupa epops</i>	Hoopoe						<i>Hartlaubius auratus</i>	Madagascar Starling					*
<i>Mirafra hova</i>	Madagascar Bush-lark					*	<i>Acridotheres tristis</i>	Common Myna					
<i>Phedina borbornica</i>	Mascarene Martin					(*)	<i>Ploceus sakalava</i>	Sakalava Weaver			*	*	
<i>Motacilla flaviventris</i>	Madagascar Wagtail					*	<i>Foudia madagascariensis</i>	Madagascar Red Fody					*
<i>Coracina cinerea</i>	Ashy Cuckoo-shrike					(*)	<i>Lonchura nana</i>	Madagascar Mannikin					*

- 1 Coquerel's Coua *Coua coquereli* (James C. Lowen)
- 2 Long-billed Greenbul *Phyllastrephus madagascariensis* (James C. Lowen)
- 3 Female Rufous Vanga *Schetba rufa* (James C. Lowen)
- 4 Madagascar Nightjar *Caprimulgus madagascariensis* (James C. Lowen)
- 5 Lesser Vasa Parrot *Coracopsis nigra* (James C. Lowen)
- 6 Cuckoo Roller *Leptosomus discolor* (James C. Lowen)



1



2



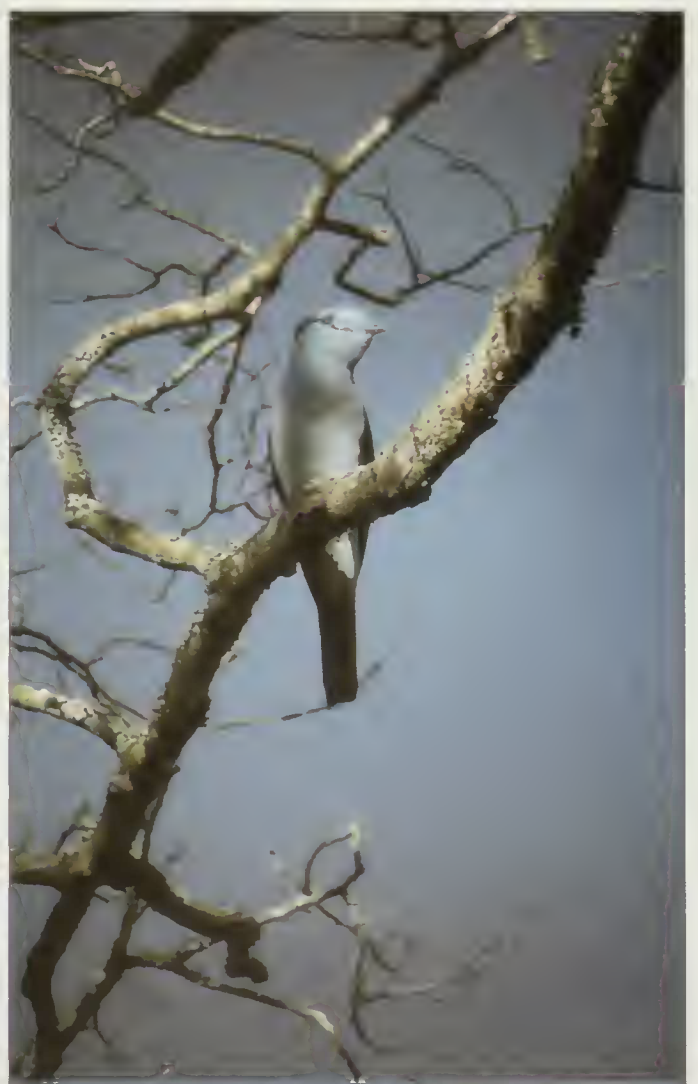
3



4



5



6